

<!--StartFragment-->RESULT 3

ASU55852

LOCUS ASU55852 2208 bp mRNA linear PLN 28-AUG-1997

DEFINITION Amaranthus sp. acetolactate synthase precursor mRNA, complete cds.

ACCESSION U55852

VERSION U55852.1 GI:1314831

KEYWORDS .

SOURCE Amaranthus sp.

ORGANISM Amaranthus sp.

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicots; Caryophyllidae; Caryophyllales; Amaranthaceae; Amaranthus.

REFERENCE 1 (bases 1 to 2208)

AUTHORS Woodworth,A.R., Rosen,B.A. and Bernasconi,P.

TITLE Broad range resistance to herbicides targeting acetolactate synthase (ALS) in a field isolate of Amaranthus sp. is conferred by a Trp to Leu mutation in the ALS gene (Accession No. U55852) (PGR96-051)

JOURNAL Plant Physiol. 111, 1353 (1996)

REFERENCE 2 (bases 1 to 2208)

AUTHORS Bernasconi,P.

TITLE Direct Submission

JOURNAL Submitted (19-APR-1996) Paul Bernasconi, Research Division, Sandoz Agro Inc, 975, California Avenue, Palo Alto, CA 94304, USA

FEATURES Location/Qualifiers

source

- 1. .2208
- /organism="Amaranthus sp."
- /mol_type="mRNA"
- /isolate="Iowa field"
- /db_xref="taxon:47306"
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CDS

- 16. .2013
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- /db_xref="GI:1314832"
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- 16. .285
- 286. .2010
- /product="acetolactate synthase"

variation

- 1721
- /note="This mutation confers broad range tolerance to acetolactate targetting herbicides"
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ORIGIN

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 Matches 1786; Conservative 0; Mismatches 60; Indels 1; Gaps 1;

Qy	1 TCATCATCTTCTTCT-CAATCACCTAACCTAACCTCCTCCGCTACTATAACTCAATC 59
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Qy	60 ACCTTCGTCTCTCACCGATGATAAACCCTCTTCTTTGTTCCCGATTAGCCCTGAAGA 119
Db	213 ACCTTCGTCTCTCACCGATGATAAACCCTCTTCTTTGTTCCCGATTAGCCCTGAAGA 272
Qy	120 ACCCAGAAAAGGTTGCGATGTTCTCGTTGAAGCTCTGAACGTGAAGGTGTTACCGATGT 179
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Db	333 TTTTGCTTACCCCTGGTGGAGCTCCATGGAAATCCATCAAGCTTACTCGTTCTAATAT 392
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Db	393 CATTAGAAAATGTTCTCCTCGACATGAACAAGGTGGGGTTTCGCTGCTCAAGGCTACGC 452
Qy	300 TCGTGCTACTGGACCGTGGAGTTGATTGCCACTTCTGGTCCAGGTGCTACTAATCT 359
Db	453 TCGTGCTACTGGACGTGTTGGAGTTGATTGCCACTTCTGGTCCGGGTGCTACTAATCT 512
Qy	360 TGTTTCTGGTCTTGCTGATGCACCTCTGACTCAGTCCCTTGTGCGCATTACTGGCA 419
Db	513 TGTTCCGGTTTGCTGATGCACCTCTGACTCAGTCCGTTGTGCGCATTACTGGCA 572
Qy	420 AGTTCCCCGGCGTATGATTGGTAUTGATGCTTTCAAGAGACTCCAATTGTTGAGGTAAC 479
Db	573 AGTTCCCTCGGGTATGATTGGTAUTGATGCTTTCAAGAGACACCTATAGTTGAGGTAAC 632
Qy	480 TCGATCCATTACCAAGCATAATTATTTGGTGTAGATGTTGAGGATATTCTAGAATTGT 539
Db	633 ACGATCAATTACTAACGATAATTATTTGGTGTAGATGTTGAGGATATTCTAGAATTGT 692
Qy	540 TAAGGAAGCTTCTTTAGCTAATTCTGGTAGACCTGGACCTGTTTGATTGATATTCC 599
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Qy	600 TAAAGATATTCAAGAACATTAGTTGTCCTAATTGGGACAGCCCATTAAATTGGTGG 659
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Qy	720 AATTGTAAGGTTAGTGGGTGAGTCTAACAGAGACCTGTGCTGTATACTGGAGGTGGGT 779
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Qy	780 GAATTCTAGTGAAGAATTGAGGAAATTGTCGAATTGACAGGTATTCCGGTGGCTAGTAC 839
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Qy	960 GGTTAGGTTGATGAACGAGTGACTGGTAAGCTCGAGGCCTTGCTAGCCGGCTAAGAT 1019
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Qy	1020 TGTGCACATCGATATCGATTCTGCTGAAATCGGGAAAGAATAAGCAACCTCATGTGTCGAT 1079
Db	1173 TGTGCACATCGATATCGATTCTGCTGAAATCGGGAAAGAATAAGCAACCTCATGTGTCGAT 1232
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Db	1233 TTGTGGTGAATTAAAGTGCATTACAGGGTTGAATAAGATTGGAATCTAGAAAAGG 1292
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Qy	1260 TGACGAGTTGACGAAGGGCGATCGGTTGTAAGTACTGGTGTGGCAGCACCAAATGTG 1319
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Qy	1320 GGCTGCCAATTCTATAAGTACCGAAATCCTCGCCAATGGCTGACCTCGGGTGGTTGG 1379
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Qy	1620 TTCCAATTCTCCGAAATCTCCGGATATGCTCAAATTGCTGAAGCATGTGATATACC 1679
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Qy	1680 AGCAGCCCGTGTACCAAGGTGAGCGATTTAAGGGCTGCAATTCAAACAAATGTTGGATAC 1739
Db	1833 AGCAGCCCGTGTACCAAGGTGAGCGATTTAAGGGCTGCAATTCAAACAAATGTTGGATAC 1892
Qy	1740 TCCAGGACCGTATCTGCTGGATGTAATCGTACCAACATCAGGAGCATGTGCTGCCTATGAT 1799
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Qy	1800 CCCTAGCGGTGCCGCCTCAAGGACACCATAACAGAGGGTGTGGAA 1846

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<!--StartFragment-->RESULT 3

Q38795_9CARY

ID Q38795_9CARY PRELIMINARY; PRT; 665 AA.

AC Q38795;

DT 01-NOV-1996, integrated into UniProtKB/TrEMBL.

DT 01-NOV-1996, sequence version 1.

DT 27-JUN-2006, entry version 33.

DE Acetolactate synthase precursor.

OS Amaranthus sp. 'Iowa'.

OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

OC Spermatophyta; Magnoliophyta; eudicotyledons; core eudicotyledons;

OC Caryophyllales; Amaranthaceae; Amaranthus.

OX NCBI_TaxID=47306;

RN [1]

RP NUCLEOTIDE SEQUENCE.

RC STRAIN=Iowa field; TISSUE=Leaf;

RX MEDLINE=96347413; PubMed=8756508;

RA Woodworth A.R., Rosen B.A., Bernasconi P.;

RT "Broad range resistance to herbicides targeting acetolactate synthase (ALS) in a field isolate of Amaranthus sp. is conferred by a Trp to Leu mutation in the ALS gene (Accession No. U55852) (PGR96-051).";

RL Plant Physiol. 111:1353-1353(1996).

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CC -----

DR EMBL; U55852; AAB67839.1; -; mRNA.

DR HSSP; P07342; IJSC.

DR SMR; Q38795; 77-662.

DR GO; GO:0003984; F:acetolactate synthase activity; IEA.

DR GO; GO:0003824; F:catalytic activity; IEA.

DR GO; GO:0030976; F:thiamin pyrophosphate binding; IEA.

DR GO; GO:0009082; P:branched chain family amino acid biosynthesis; IEA.

DR InterPro; IPR012846; Acetolac_syn_lg.

DR InterPro; IPR004407; Acolac_synthlrg.

DR InterPro; IPR000399; TPP_bd.

DR InterPro; IPR012001; TPP_bd_enzyme_N.

DR InterPro; IPR011766; TPP_enzyme_bd_C.

DR InterPro; IPR012000; TPP_enzyme_M.

DR Pfam; PF02775; TPP_enzyme_C; 1.

DR Pfam; PF00205; TPP_enzyme_M; 1.

DR Pfam; PF02776; TPP_enzyme_N; 1.

DR PIRSF; PIRSF500108; Acetolac_syn_lg; 1.

DR PIRSF; PIRSF001370; ThDP_depend_acl; 1.

DR TIGRFAMs; TIGR00118; acolac_lg; 1.

KW Signal.

FT SIGNAL 1 90 Potential.

FT CHAIN 91 665 acetolactate synthase.

SQ SEQUENCE 665 AA; 72481 MW; 669B1C8B0D8AE412 CRC64;

Query Match 97.5%; Score 3083; DB 2; Length 665;

Best Local Similarity 97.7%; Pred. No. 2.8e-197;

Matches 596; Conservative 8; Mismatches 6; Indels 0; Gaps 0;

Qy 5 QSPKP KPPSATITQSPSSLDDKPSSFVSRSPEEPRKGCDVLVEALEREGVTDFAYPG 64
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Qy 65 GASMEIHQALTRSNIIRNVLPRHEQGGVFAAEGYARATGRVGVCIATSGPGATNLVSGLA 124
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Qy	185 LANSGRPGPVLIDIPKDIQQQLVVPNWEQPIKLGGYLSRLPKPTYSANEEGLLDQIVRLV	244
Db	232 LANSGRPGPVLIDIPKDIQQQLVVPNWEQPIKLGGYLSRLPKPTFSANEEGLLDQIVRLV	291
Qy	245 GESKRPVLYTGGGCLNSSEELRKFVELTGIPVASTLMGLGAFPCTDDLSLHMLGMHGTVY	304
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Qy	425 GDAVVSTGVGQHQMWAAQFYKYRNPRQWLTSGGLGAMGFGLPAAIGAAVARPDAVVVDID	484
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1	IS&R	L1	1	("5633437") . PN.	US- PGPUB; USPAT	2008/01/02 13:17	
2	BRS	L2	1	GVRFDERVTGK	US- PGPUB; USPAT; EPO; JPO; DERWENT	2008/01/02 13:18	
3	BRS	L3	542847 7	ALS or AHAS	US- PGPUB; USPAT; EPO; JPO; DERWENT	2008/01/02 13:18	
4	BRS	L4	46758	13 and plant.clm.	US- PGPUB; USPAT; EPO; JPO; DERWENT	2008/01/02 13:19	
5	BRS	L5	2444	14 and ((aspartic adj acid) with (glutamic adj acid))	US- PGPUB; USPAT; EPO; JPO; DERWENT	2008/01/02 13:22	

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6	BRS	L6	978	15 and ((aspartic adj acid) with (glutamic adj acid) with (substitute or substitution))	US- PGPUB; USPAT; EPO; JPO; DERWENT	2008/01/02 13:26	
7	BRS	L7	47	16 and herbicide.clm.	US- PGPUB; USPAT; EPO; JPO; DERWENT	2008/01/02 13:26	

(FILE 'HOME' ENTERED AT 15:19:38 ON 02 JAN 2008)

FILE 'BIOSIS, CAPLUS, EMBASE, AGRICOLA' ENTERED AT 15:19:46 ON 02 JAN 2008

L1 3750 S (AHAS OR ALS) AND PLANT

L2 1156 S L1 AND HERBICIDE

L3 0 S L2 AND ((ASPARTIC (A) ACID) (S) (GLUTAMIC (A) ACID))

L4 0 S L2 AND WHALEY

L5 0 S L2 AND WILSON

L6 0 S L2 AND WESTWOOD